REMARKS/ARGUMENTS

Favorable consideration of this Application and in light of the following discussion is respectfully requested.

Claims 1, 3-6 and 8-19 are pending in the present application. Claims 1, 3, 6 and 8 are amended by the present amendment and new Claims 16-19 have been added, all without the introduction of any new matter. Support for the amendments to the claims can be found in the specification as originally filed. Support for new claims 16-19 can be found in claims 1-6 and 10-14 as originally filed.

In the outstanding Office Action, Claims 1, 3, 4, 6, 8, 9 and 11-14 were rejected under 35 U.S.C. §103(a) as unpatentable over Applicants admitted prior art (herein AAPA) in view of Sugihara et al. (JP 03072624, herein "Sugihara") and Craig A. Phelps (U.S. Pat. No. 5,724,234, herein "Phelps"); Claims 5, 10 and 15 were rejected under 35 U.S.C. §103(a) as unpatentable over AAPA, Sugihara, and Phelps in further view of Shimamura et al. (U.S. Pat. No. 5,707,500, herein "Shimamura") as evidenced by Soloman (Article in Publication, Sensors handbook by Sabrie Soloman, Copyright 1999); and Claim 15 was rejected under 35 U.S.C. §103(a) as unpatentable over AAPA, Sugihara, and Phelps in further view of Bowers et al. (U.S Pat. No. 5,680,025, herein "Bowers").

Initially, Applicants and Applicant's representative wish to thank Examiner Kacker for the telephone interview granted applicant's representative on October 31, 2006. During that interview the outstanding rejections were discussed in detail. Further, during that interview claim amendments were discussed to clarify the claims. The present response sets forth the discussed claim amendments.

Turning now to the rejection in the outstanding Office Action of Claims 1, 3, 4, 6, 8, 9 and 11-14 under 103(a) based on AAPA, Sugihara, and Phelps, Applicants respectfully traverse that rejection for at least the following reasons.

Claim 6 recites, in part,

> a susceptor which is disposed in said conductive vessel and on which a substrate to be processed is to be placed; and
>
> a radiation thermometer for measuring a temperature of the susceptor,
>
> wherein the susceptor has a temperature measurement hole disposed at a predetermined portion for measuring a temperature of the susceptor on a rear surface side of said susceptor,
>
> wherein said conductive vessel has an opening that is formed in a portion facing the predetermined temperature measured portion and that has a size not allowing the radio frequency power to leak to an external part, and
>
> wherein said radiation thermometer at an external part of the opening an infrared ray emitted from the temperature measured portion to measure a temperature of said susceptor.

Claim 1 recites similar features.

AAPA shows a susceptor disposed in a conductive vessel, however AAPA does not describe or suggest the susceptor has a temperature measurement hole disposed at a predetermined portion for measuring a temperature of the susceptor on a rear surface side of said susceptor and said radiation thermometer at an external part of the opening an infrared ray emitted from the temperature measured portion to measure a temperature of said susceptor.

In other words, AAPA does not show a hole in the susceptor that allows the rear surface side of the susceptor to be measured by an infrared ray.

Sugihara discloses a temperature measuring system for measuring a temperature of a substrate 22 using a oxide silicon thin film 18 of the sample piece 12 with measurement holes 19 formed in a silicon substrate 17 and provided on the end part of a sample stand 23. The

system[1] 1 is constituted of the a sample piece 12 comprised of a silicon oxide thin film 18 and a silicon substrate 17 and installed on a through hole 11 formed in the end part of the cathode 23, a spacer member 14 arranged so as to form a measuring space 13 between the inner wall of a vacuum container 21 and the sample stand, a peep window 15 formed at the position of this space 13 and the infrared temperature indicator 16 arranged outside of the container 21 so as to measure the temperature of the silicon oxide 18 through this peep windows 15.[2]

However, Sugihara does not describe or suggest that the susceptor has a temperature measurement hole disposed at a predetermined portion for measuring a temperature of the susceptor on a rear surface side of said susceptor.

In item 2, the outstanding Action is relying on the combination of AAPA and Sugihara as teaching this feature. However, even if AAPA describes a susceptor, Sugihara cannot be used to teach that it would be obvious to make a measurement hole in the susceptor for measuring a temperature of the susceptor on a rear surface side of the susceptor.

In Sugihara the sample piece 12 is made of two materials, silicon 17 and silicon oxide 18. The temperature of the substrate 22, which is made of silicon oxide, is determined by measuring the silicon oxide 18 portion of the sample 12. In contrast, the susceptor of Claim 6 is made of a single material in which a hole is made on the rear surface side.

In Sugihara no hole is made in the material to be measured (the silicon oxide 18). Therefore clearly it would not have been obvious from the teaching of Sugihara to make a hole in the rear side of the material to be measured. Nor does Sugihara teach that the hole is disposed at a predetermined portion as is recited in Claim 6 as in Sugihara, the proportion of the hole 19 in the silicon 17 is irrelevant since there is no hole in the material to be measured (silicon oxide 18). In addition, there is no material above the silicon oxide 18 which transfers heat to the silicon oxide 18 which affects the depth of the hole in the measured material.

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[1] Sugihara, Fig. 2.
[2] Sugihara, Col. 6, lines 9-18.

As discussed in the interview, the present specification states on page 11, lines 1-5, that the hole placed in the susceptor "allows the detection of the temperature of a portion as close as possible to an upper face of the susceptor 2 on which the wafer W is placed" (emphasis added). Thus, placing a hole in the material to be measured provides an advantage that the temperature of the susceptor close to the wafer W located above the susceptor can be better measured.

In addition, Sugihara is interested in measuring the temperature of the substrate 22 not the temperature of a susceptor located below the substrate. In the present invention as described on page 3, lines 11-16, the susceptor has a temperature control mechanism, such as refrigerant which is used to indirectly control the temperature of the wafer W. Thus, the temperature of the susceptor is what the present invention is interested in finding out. In contrast, Sugihara is interested in finding the temperature of a substrate 22, therefore the piece 18 of the sample 12 is measured.

Therefore, the object to be measured of the claimed invention is quite different from the object to be measured in Sugihara. Further, in contrast to Sugihara, the claimed invention does not require an additional monitoring piece and forms a hole in the material to be measured.

Additionally, the further cited Phelps reference does not cure the above noted deficiencies in the combination of AAPA and Sugihara.

Accordingly, Applicants respectfully submit that independent Claim 6 and similarly Claim 1 patentably distinguish over AAPA, Sugihara and Phelps alone or in any proper combination.

Moreover, with respect to the further dependent claims in light of the above discussion, Applicant respectfully submits that those claims also distinguish over the applied

art, particularly as none of these further cited teachings to Shimamura, Soloman or Bowers are believed to overcome the above-noted deficiencies of AAPA, Sugihara and Phelps.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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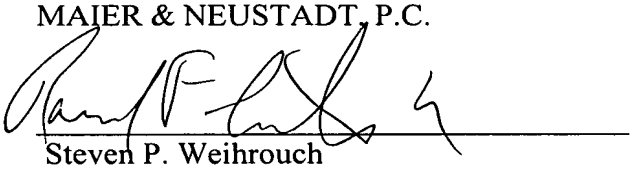

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